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EXAMINER	
ZOLLINGER, NATHAN C	

ART UNIT	PAPER NUMBER
3746	

NOTIFICATION DATE	DELIVERY MODE
11/03/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/549,968	MEIER ET AL.	
	Examiner	Art Unit	
	NATHAN ZOLLINGER	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 October 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51,54-70 and 73* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-51,54-70 and 73* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 September 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Response to Amendment

The amendment filed on March 9, 2010 has been entered. Claim 37 has been amended and claims 71-72 have been cancelled. Claims 73-74 have been newly added. The amendment filed on October 15, 2010 has also been entered with claim 73 amended and claim 74 cancelled.

In view of Applicant's arguments, Examiner hereby withdraws the Office Action submitted June 18, 2010 with the Action herein. In light of Applicant's amendment and other changes, all previous objections have been withdrawn as well.

Drawings

The drawings are objected to under 37 CFR 1.83(a) because they fail to show a stepping motor or an electromagnetic oscillating part as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary,

the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 73 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 73 recites the limitation "a longitudinal axis" in line 17 and then subsequently recites a "center longitudinal axis" in line 18. Examiner is unsure if these axes are one in the same or if they refer to two distinct axes.

Additionally, in claim 48, Applicant claims an "electromagnetic oscillating part" which is apparently different from a stepping motor or electric motor; however, Examiner is unable to ascertain what kind of device it is (even after consulting the specification) or what distinguishes it from a bi-directional stepper motor.

Comment [D1]: THis is a 112 2nd

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

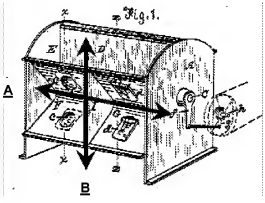
> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 73 is rejected under 35 U.S.C. 102(b) as being anticipated by Longworth (US 435,506).

Claim 73: Longworth discloses a pump (Fig. 1), suitable for use as a vacuum pump or compressor, comprising at least one pump piston (D) moving on a circular path, and a pump housing (A), the pump piston, optionally coupled in a rigid manner to one or more further pump pistons, moving in an oscillating manner about an axis of rotation on a path of movement correspondingly having two reversal positions (Figs. 2-3); and furthermore a medium, optionally compressed or pressurized, being discharged via an outlet valve (d) and, in the course of movement from one reversal position into the other reversal position, art inlet valve (c) being opened; after which, in the course of a pressure buildup, the medium is discharged on a pressure side of the pump piston then obtained and taken in on a suction side of the pump piston then obtained, the inlet valve and the outlet valve being formed in a common housing dividing wall (Figs. 1-3, curved wall, "strip," on which valves c and d are found), wherein the inlet valve and the outlet valve are associated with the same end region of the path of movement, wherein further, the inlet valve and the outlet valve being provided in an exchangeable valve strip (Examiner broadly views the fasteners which hold the curved wall, "strip," with the

rest of the housing indicative of the "strip" being removable) such that an outer-edge disposition of the inlet valve can be switched to an outer-edge disposition of the outlet valve or vice-versa by turning the valve strip around (Figs. 1-3, Examiner notes that the strip could easily be turned around to reverse the valves). Longworth further discloses a pump wherein the valve strip is formed in mirror image with respect to a longitudinal axis (axis **A**) with the inlet valves and the outlet valves lying opposite one another with respect to a center longitudinal axis (axis **B**) of the valve strip.

Comment [D2]: move this rejection



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 37, 39-44 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bachrach (US 2,359,819) in view of Jackson (US 1,243,299) and in further view of Wellington (US 2,754,050).

Claim 37: Bachrach discloses a pump comprising at least one pump piston (25) moving on a circular path, and a pump housing (12), the pump piston optionally coupled in a rigid manner to one or more further -pump pistons (26), moving in an oscillating manner about an axis of rotation on a path of movement correspondingly having two reversal positions; and furthermore a medium (col. 1, lines 1-5), optionally compressed or pressurized, being discharged via an outlet valve (32,38,44,50) and, in the course of movement from one reversal position into the other reversal position, an inlet valve (31,37,43,49) being opened; after which, in the course of a pressure buildup, the medium is discharged on a pressure side of the pump piston then obtained and taken in on a suction side of the pump piston then obtained, the inlet valve (49) and the outlet valve (50) are associated with the same end region of the path movement (Fig. 1). However, Bachrach does not disclose inlet/outlet valves formed in a common housing dividing wall. Jackson discloses a pump in which the inlet/outlet valves are formed in a common housing wall (Fig. 1). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ interior valves as taught by Jackson into the pump of Bachrach in order to protect the valves from being damaged by and to make the entire pump assembly more compact. Bachrach also does not disclose coating the pump with a flocking in the surface area of an associated movement gap. Wellington teaches coating a pump with a flocking in the surface area of an associated movement gap (44, 46, 56, 58; col. 3, lines 3-10). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to

employ a flocking as taught by Wellington into the pump of Bachrach in order to reduce fluid leakage and improve volumetric efficiency as the piston operates.

Claim 39: Bachrach, Jackson and Wellington teach the limitations of claim 38, discussed previously. Bachrach also discloses a pump wherein a pump chamber is formed radially on the inside by an inner wall (23) formed rotationally fixed with respect to the pump piston.

Claim 40: Bachrach, Jackson and Wellington teach the limitations of claim 39, discussed previously. Bachrach also discloses a pump wherein a housing outer wall (12) bounding the pump chamber radially on the outside is formed in a fixed manner.

Claim 41: Bachrach, Jackson and Wellington teach the limitations of claim 39, discussed previously. Bachrach also discloses a pump wherein a housing outer wall (Fig. 4, 11, 13) bounding the pump chamber radially on the outside is movable (removable structure depicted in Fig. 4).

Claim 42: Bachrach, Jackson and Wellington teach the limitations of claim 39, discussed previously. Bachrach also discloses a pump wherein a further inlet valve is formed in the housing outer wall (Fig. 2, examiner reasons that the inlet valves 31, 37, 43, 49 are "formed" into the outer wall in the sense that the valves include threaded end portions which are placed into the outer wall).

Claim 43: Bachrach, Jackson and Wellington teach the limitations of claim 39, discussed previously. Bachrach also discloses a pump wherein the pump chamber is bounded in the direction of movement of the pump piston by a fixed housing dividing wall (19a, 20a).

Claim 44: Bachrach, Jackson and Wellington teach the limitations of claim 37, discussed previously. Bachrach also discloses a pump wherein the outlet valve is formed as a check valve (page 2, lines 1-10).

Claim 63: Bachrach, Jackson and Wellington teach the limitations of claim 37, discussed previously. Bachrach also discloses a pump wherein a number of outlet valves are disposed next to one another parallel to the direction of rotation (Fig. 2).

Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bachrach (US 2,359,819) in view of Jackson (US 1,243,299) and Wellington (US 2,754,050) and in further view of Audsley (US 4,028,018).

Claim 70: Bachrach, Jackson and Wellington teach the limitations of claim 37, discussed previously. Bachrach does not disclose a number of pump housings identically formed such that they can be exchanged for each other. Audsley teaches a number of pump housing identically formed such that they can be exchanged for each other (Fig. 6). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ multiple pump housings as taught by Audsley into the pump of Bachrach in order to increase pump output.

Claims 37-39, 45-46, 49-51, 57 and 66-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 50060808 ('808) in view of Jackson (US 1,243,299) and Wellington (US 4,028,018).

Claim 37: '808 discloses a pump comprising at least one pump piston (2) moving on a circular path, and a pump housing (1), the pump piston optionally coupled in a rigid manner to one or more further pump pistons (2), moving in an oscillating

manner about an axis of rotation on a path of movement correspondingly having two reversal positions; and furthermore a medium, optionally compressed or pressurized, being discharged via an outlet valve (5) and, in the course of movement from one reversal position into the other reversal position, an inlet valve (4) being opened; after which, in the course of a pressure buildup, the medium is discharged on a pressure side of the pump piston then obtained and taken in on a suction side of the pump piston then obtained, the inlet valve (4) and the outlet valve (5) are associated with the same end region of the path movement (Fig. 1). However, '808 does not disclose inlet/outlet valves formed in a common housing dividing wall. Jackson discloses a pump in which the inlet/outlet valves are formed in a common housing wall (Fig. 1). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ interior valves as taught by Jackson into the pump of '808 in order to protect the valves from being damaged by and to make the entire pump assembly more compact. '808 also does not disclose coating the pump with a flocking in the surface area of an associated movement gap. Wellington teaches coating a pump with a flocking in the surface area of an associated movement gap (44, 46, 56, 58; col. 3, lines 3-10). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ a flocking as taught by Wellington into the pump of '808 in order to reduce fluid leakage and improve volumetric efficiency as the piston operates.

Claim 38: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. '808 also discloses a pump wherein the inlet valve (9) is run over in the movement from one reversal position into the other reversal position (Drawing 1).

Claim 39: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. '808 also discloses a pump wherein a pump chamber is formed radially on the inside by an inner wall formed rotationally fixed with respect to the pump piston (Drawing 1).

Claim 45: '808, Jackson and Wellington teach the limitations of claim 39, discussed previously. '808 also discloses a pump wherein a further outlet valve is formed in the pump chamber floor or the pump chamber ceiling or the housing outer wall (5, Drawing 1).

Claim 46: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. '808 also discloses a pump wherein the pump is driven by an electric motor (15).

Claim 49: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. '808 also discloses a pump wherein a drive is performed by means of a crankshaft (Drawing 2).

Claim 50: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. '808 also discloses a pump wherein the drive acts on two or more pumps linked by means of the same crankshaft (Drawing 2).

Claim 51: '808, Jackson and Wellington teach the limitations of claim 50, discussed previously. '808 also discloses a pump wherein the two pumps driven by the same crankshaft move in opposite directions (Drawing 2).

Claim 57: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. '808 does not disclose a pump wherein an outlet valve has a mounting foot. Henriksen teaches a mounting foot (112a).

Claim 66: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. '808 also discloses a pump wherein a pump has four pump pistons (Drawing 2) of which two or more respectively move on a common circular path.

Claim 67: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. '808 also discloses a pump wherein two pump pistons moving on a common circular path are respectively disposed in a separate pump housing (Drawing 2).

Claim 68: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. '808 also discloses a pump wherein a common drive is provided for two pump pistons and in that the drive is disposed in a drive housing (15) separate from the pump housing (Drawing 2).

Claim 69: '808, Jackson and Wellington teach the limitations of claim 68, discussed previously. '808 also discloses a pump wherein the drive housing (15) is disposed between the pump housings (Drawings 2-3).

Claims 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 50060808 ('808) in view of Jackson (US 1,243,299) and Wellington (US 4,028,018) and in further view of Backlund (US 5,869,774).

Claims 47-48: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. '808 does not disclose using a stepping motor (which is being interpreted as an electromagnetic oscillating part). Backlund teaches using a stepping motor (col. 3, lines 58-60) with a pump. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ a stepping motor as taught by Backlund into the pump of '808 in order to control the operation/output of the pump in a very precise manner.

Claim 54-56 and 58-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 50060808 ('808) in view of Jackson (US 1,243,299) and Wellington (US 4,028,018) and in further view of Henriksen (US 5,201,644).

Claim 54: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. '808 also discloses a pump wherein the inlet valve (4) and the outlet valve (5) is a bending out portion (Drawing 1). However, '808 does not teach a valve with a closure plate. Henriksen teaches a closure plate (112b, 212b). It would be obvious to employ the valve as taught by Henriksen into the pump of '808 in order to fill the dead space present between the working space and valve seat as well as self-center the valve during closing (col. 5, lines 61-68; col. 6, lines1-2).

Claim 55: ''808, Jackson, Wellington and Henriksen teach the limitations of claim 54. '808 does not disclose a closure plate which merges with a bending-out

portion with the same diameter. Henriksen teaches a closure plate (212b) with the same width as a bending out portion (212, Fig. 10). Henriksen teaches the claimed invention except for mentioning a diameter. It would have been obvious matter of design to choice to make the valves circular since it appears that the invention would perform equally well with Henriksen's valve shape.

Claim 56: "808, Jackson, Wellington and Henriksen teach the limitations of claim 54. '808 does not disclose an outlet valve in which closure plates and bending-out portions merge with each other in a coplanar manner. Henriksen teaches a closure plate (112b) merging with the bending out portion (100b) in a coplanar manner (Fig. 7).

Claim 58: "808, Jackson, Wellington and Henriksen teach the limitations of claim 57. '808 does not disclose a pump wherein the mounting foot merges with a bending-out portion in a coplanar manner Henriksen teaches a mounting foot (112a) merging with a bending-out portion (100a) in a coplanar manner (Fig. 8).

Claim 59: "808, Jackson, Wellington and Henriksen teach the limitations of claim 54. '808 does not disclose a pump wherein the closure plate rests on a support which is mounted in a clamping manner between the valve and the associated housing part. Henriksen teaches a closure plate which rests on a support (113, 213) and is clamped between the valve and a housing part (see Fig. 1).

Claim 60: "808, Jackson, Wellington and Henriksen teach the limitations of claim 59. '808, Jackson and Henriksen teach the limitations of claim 60 except for a clamping part. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a clamping part since it was known in the art

that pump assemblies must be clamped together with some fastener so that they do not fall apart during operation.

Claim 61: "808, Jackson, Wellington and Henriksen teach the limitations of claim 59. '808, Jackson and Henriksen teach the limitations of claim 61 except for a pressure part (35). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a pressure part since it was known in the art that pump assemblies must be clamped together, which clamping causing each part to act upon a neighboring part with pressure, preventing the assembly from coming apart during operation.

Claim 62: "808, Jackson, Wellington and Henriksen teach the limitations of claim 37. '808 does not teach a valve wherein a longitudinal extent runs parallel to the axis of rotation of the pump pistons. Henriksen teaches a valve with a longitudinal extent that runs parallel to a piston axis of rotation (Figs. 1-2).

Claims 64-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 50060808 ('808) in view of Jackson (US 1,243,299) and Wellington (US 4,028,018) and in further view of Mosley (US 2,751,146).

Claim 64: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. However, '808 does not disclose a pump with an opening projection associated with the outlet valve. Mosley teaches an opening projection (64; col. 3, lines 65-75). It would be obvious to employ a projection as taught by Mosley into the pump of '808 in order to unseat the valve in case the valve becomes stuck (col. 3, lines 72-75).

Claim 65: '808, Jackson and Wellington teach the limitations of claim 37, discussed previously. However, '808 does not disclose a pump wherein an opening projection is formed as a push rod. Mosley teaches an opening projection formed as a push rod (64; col. 3, lines 65-75). It would be obvious to employ a push rod as taught by Mosley into the pump of '808 in order to unseat the valve in case the valve becomes stuck (col. 3, lines 72-75).

Response to Arguments

Applicant's arguments with respect to claims 37-51 and 54-70 and 73 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN ZOLLINGER whose telephone number is 571-270-7815. The examiner can normally be reached on Monday - Thursday, 9 a.m. - 4 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746

/N. Z./
Examiner, Art Unit 3746